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104. *Cladonia sylvatica* (L.) Hoffm. Two specimens. (Fitzwilliam, common.)
105. *Cladonia alpestris* (L.) Rabenb. Two specimens. (Fitzwilliam, common.)
106. *Cladonia Floerkeana* (Fr.) Sommf. One specimen.
107. *Cladonia Floerkeana intermedia* Hepp. One specimen.
108. *Cladonia amaurocraea* (Flk.) Schaer. One specimen.
109. *Cladonia uncialis* (L.) Web. Hoffm. Six specimens.
110. *Cladonia uncialis obtusata* Ach. Three specimens.
111. *Cladonia reticulata lacunosa* (Bor.) Wain. Four specimens.
112. (?) *Cladonia coccifera* (L.) Willd. One doubtful specimen.
113. *Cladonia coccifera pleurota* Flk. Three specimens. (Fitzwilliam, common.)
114. *Cladonia coccifera stematina* Wain. Two specimens.
115. *Cladonia digitata* Schaer. One specimen.
116. *Cladonia digitata monstrosa* Wain. Four specimens.
117. *Cladonia didyma pygmaea* Wain. Four specimens.
118. *Cladonia bacillaris* Nyl. Four specimens.
119. *Cladonia macilenta* (Ehrh.) Hoffm. Two specimens, one doubtful, determination by Dr. L. W. Riddle.
120. *Cladonia cristatella* Tuck. Seven specimens. (Fitzwilliam, common.)
121. *Cladonia cristatella ochrocarpia* Tuck. Five specimens.
122. *Cladonia cristatella vestita* Tuck. One specimen.

There were three specimens returned by Dr. Scriba as indeterminable.
Concord, Mass.

TO BE CONTINUED.

FIELD NOTES ON EPHEMERUM AND NANOMITRIUM.

GEORGE E. NICHOLS.

The writer is about to undertake a study of the North American species of *Ephemerum* and *Nanomitrium*—our only representatives of the group known as the *Ephemereae*—and for this purpose desires to obtain specimens from all parts of the country. These two genera include some of the smallest known mosses, and it is perhaps not to be wondered at that they are not overabundantly represented in herbaria. The paucity of available material is not, however, due to the scarcity of the plants, for almost without doubt one or more species may be found in any region of temperate or tropical America where there are appropriate habitats. The writer rarely takes a day's tramp in the fall without discovering one or more new stations. It is with a view to introducing these tiny plants to those moss students who are not already personally acquainted with them, and of thus obtaining more extensive material upon which to work, that the writer ventures the following brief remarks relative to their habit and field characters, time of fruiting, habitat, and range.

HABITAT AND FIELD CHARACTERS. As already intimated, all of the species of *Ephemerum* and *Nanomitrium* are very minute. The leafy shoot

of the plant consists merely of a short bud-like cluster of leaves borne on an exceedingly short stem and surrounding the diminutive capsule. The whole plant in *Nanomitrium* is scarcely more than 1 mm. in height, and even in the larger forms of *Ephemerum* rarely exceeds 2 mm. One of the most important distinguishing characteristics of these two genera, and fortunately one which facilitates their recognition in the field, is the fact that the green protonema, from which the leafy shoots arise, persists throughout the life of the plant. In many species, especially in those which, like *Ephemerum spinulosum*, grow in very damp places, this structure forms a conspicuous, dark green, felty mat, covering the substratum about the leafy shoots. It looks very much like a mass of *Vaucheria* or some other Alga, and is darker in color than the pale green protonema of *Pogonatum tenue*. Upon close examination of such a mat with a hand lens the fruiting plants of *Ephemerum*, if present, are easily distinguished. In some forms, however, e. g. *Nanomitrium Austini*, the protonema is not a conspicuous field character of the plant. Such species are to be detected only by digging up and carefully examining with a lens pieces of earth which appear promising.

TIME OF FRUITING. Both *Ephemerum* and *Nanomitrium* are annuals. In some species the entire life cycle from spore to spore is completed in less than six months. Late in summer or early in autumn the tiny, spherical capsules become distinguishable with a lens. The spores mature from late autumn to spring, so that the most favorable time for collecting the plants is from October to January.

HABITAT. In this connection the following list of localities from which some of the specimens in the writer's possession have been collected may be suggestive: "fields and gardens," "thin soil on rocks," "relatively dry, hard earth in a cart path," "lumps of earth in old corn fields," "gravelly roadsides," "river bank," "among marsh grasses on moist ground in river bottoms," "muddy bed of a dried up pond," "dry mud at the border of a cattle wallow," "clayey bottom and sides of ditch." It will be seen that their habitats are quite varied.

In general they may be looked for on any bare, earthy substratum which is not too dry the year round and which has not already been preempted by such prolific forms as *Funaria hygrometrica*, *Physcomitrium turbinatum*, *Bryum argenteum*, *Pohlia nutans*, and *P. prolifera*. They usually grow in sunny or only slightly shaded situations, and almost never in the woods. Of the habitats listed above, the last four mentioned are perhaps the most certain to repay close investigation. It is in such places that Riccias are wont to occur, and these liverworts are very frequently associated with Ephemeraceae of some description.

RANGE. Largely on account of their small size the Ephemeraceae have been so little collected that it is at present impossible to describe their distribution with any degree of accuracy. On a basis of the stations for various species thus far recorded the range of the group may be roughly defined as: Quebec to Florida; westward to Saskatchewan, Kansas, and Louisiana; and in California. Concerning the distribution of the individual species still less is

known. This is especially true of the species of *Nanomitrium*, none of which have been recorded from more than three or four stations. It is hoped that the presentation of these facts at this time will arouse interest in this group of mosses among American bryologists.

Yale University, New Haven, Conn.

SULLIVANT MOSS SOCIETY NOTES.

NOTICE—ELECTION OF SULLIVANT MOSS SOCIETY OFFICERS FOR 1911.

Members of the Sullivant Moss Society are requested to send ballots *at once* to Dr. A. J. Grout, New Dorp, Richmond Co., New York, Judge of Elections. Polls close November 30th.

For President—Dr. Alexander W. Evans, Sheffield Scientific School, New Haven, Conn.

For Vice President—Miss C. C. Haynes, Highlands, N. J., and New York City.

For Secretary—Mr. N. L. T. Nelson, Des Moines College, Des Moines, Iowa.

For Treasurer—Mrs. Annie Morrill Smith, Brooklyn, N. Y.

NEW MEMBERS.—No. 210. Miss E. Lucy Braun, 2702 May street, Cincinnati, Ohio. No. 211. Miss M. S. Clapp, 24 Salcombe street, Dorchester, Mass.

Plans for the seventh public meeting of the Sullivant Moss Society in affiliation with the American Association for the Advancement of Science are being worked out and a fine session is assured. The secretary for the meeting is Dr. G. H. Conkling, 1204 Tower ave., Superior, Wisconsin, to whom all communications should be addressed. This meeting will largely be in the hands of our western members and friends and we all know how royally the west executes all it undertakes.

As usual post cards will be sent to members giving exact date, place of meeting and other details.

FOR SALE.—‘*Hepaticae Britannicae Exsiccatae*,’ being a collection of one hundred specimens of British Hepaticae, including many rare species carefully prepared and named by Wm. H. Pearson, to whom subscriber’s names should be sent, at 18 Palatine Road, Manchester, England. Price five dollars.